Appendix A. Amended Claims.

1. (currently amended) A ~~DNA sequence~~ gene encoding a peptide, wherein said peptide comprises a first domain and a second domain, wherein: **(a)** said first domain comprises a hormone selected from the group consisting of gonadotropin-releasing hormone, lamprey III luteinizing hormone releasing hormone (I-LHRH-III), beta chain of luteinizing hormone (bLH), luteinizing hormone, chorionic gonadotropin, the beta subunit of chorionic gonadotropin, follicle stimulating hormone, melanocyte-stimulating hormone, somatostatin, and analogues of these hormones; and **(b)** said second domain comprises a lytic peptide, wherein said lytic peptide comprises from 10 to 39 amino acid residues, is basic, and will form an amphipathic alpha helix.

2. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said first domain is bonded directly to said second domain, without an intermediate linking domain joining said first and second domains.

3. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said lytic peptide is selected from the group consisting of a cecropin peptide, a melittin peptide, a defensin peptide, a magainin peptide, a sarcotoxin peptide, and analogs of said peptides.

4. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said lytic peptide comprises hecate.

5. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said hormone comprises I-LHRH-III.

6. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said hormone comprises gonadotropin-releasing hormone.

7. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said ~~DNA sequence~~ gene encodes a peptide having the sequence SEQ ID NO: 3 or SEQ ID NO: 4.

8. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said ~~DNA sequence~~ gene encodes a peptide having the sequence SEQ ID NO: 12 or SEQ ID NO: 15.

9 - 10. (canceled)

11. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said hormone comprises luteinizing hormone.

12. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said hormone comprises chorionic gonadotropin or the beta subunit of chorionic gonadotropin.

13. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said hormone comprises follicle stimulating hormone.

14. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said hormone comprises melanocyte-stimulating hormone.

15 - 16. (canceled)

17. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said hormone comprises somatostatin.

18 - 30. (canceled)

31. (withdrawn, and currently amended) A method for decreasing fertility in an animal, comprising administering to the animal an effective amount of a ~~DNA sequence~~ gene encoding a peptide, wherein said peptide comprises a first domain and a second domain; wherein said first domain comprises a hormone selected from the group consisting of gonadotropin-releasing hormone, lamprey III luteinizing hormone releasing hormone (l-LHRH-III), the beta subunit of chorionic gonadotropin, the beta chain of luteinizing hormone (bLH), and analogs of these hormones; and wherein said second domain comprises a lytic peptide; wherein the lytic peptide comprises from 10 to 39 amino acid residues, is basic, and will form an amphipathic alpha helix.

32. (withdrawn) A method as recited in Claim 31, wherein the first domain is bonded directly to the second domain, without an intermediate linking domain joining the first and second domains.

33. (withdrawn) A method as recited in Claim 31, wherein the lytic peptide is selected from the group consisting of a cecropin peptide, a melittin peptide, a defensin peptide, a magainin peptide, a sarcotoxin peptide, and analogs of said peptides.

34. (withdrawn) A method as recited in Claim 31, wherein the lytic peptide comprises hecate.

35. (withdrawn, and currently amended) A method as recited in Claim 31, wherein the ~~DNA sequence~~ gene encodes a peptide having the sequence SEQ ID NO: 3.

36. (withdrawn, and currently amended) A method as recited in Claim 31, wherein the ~~DNA sequence~~ gene encodes a peptide having the sequence SEQ ID NO: 4.

37. (withdrawn, and currently amended) A method as recited in Claim 31, wherein the ~~DNA sequence~~ gene encodes a peptide having the sequence SEQ ID NO: 12 or SEQ ID NO: 15.

38. (withdrawn) A method as recited in Claim 31, wherein the animal is a mammal.

39. (withdrawn) A method as recited in Claim 31, wherein the animal is a bird.

40. (withdrawn) A method as recited in Claim 39, wherein the bird is a chicken or a turkey.

41. (withdrawn) A method as recited in Claim 31, wherein the animal is an insect.

42 - 47. (canceled)

48. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent or ligand-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene encoding a peptide, wherein said peptide comprises a first domain and a second domain, wherein: **(a)** the first domain comprises the hormone or ligand on which the growth of the tumor depends; and **(b)** the second domain comprises a lytic peptide, wherein said lytic peptide comprises from 10 to 39 amino acid residues, is basic, and will form an amphipathic alpha helix.

49 - 58. (canceled)

59. (withdrawn) A method as recited in Claim 48, wherein the cell is part of a pituitary adenoma, and wherein the hormone or ligand is selected from the group consisting of gonadotropin-releasing hormone, lamprey III luteinizing hormone releasing hormone (I-LHRH-III), corticosteroid-releasing hormone, growth hormone-releasing hormone, vasoactive intestinal polypeptide, and pituitary adenylate cyclase activating peptide, and analogs of those hormones and peptides.

60. (withdrawn) A method as recited in Claim 48, wherein the cell is part of a breast cancer, and wherein the hormone or ligand comprises gonadotropin-releasing hormone, lamprey III luteinizing hormone releasing hormone (l-LHRH-III), the beta subunit of chorionic gonadotropin, beta chain of luteinizing hormone (bLH), or an analog of one of those hormones.

61. (withdrawn) A method as recited in Claim 48, wherein the cell is part of an ovarian cancer, and wherein the hormone or ligand comprises gonadotropin-releasing hormone, lamprey III luteinizing hormone releasing hormone (l-LHRH-III), the beta subunit of chorionic gonadotropin, beta chain of luteinizing hormone (bLH), or an analog of one of those hormones.

62. (withdrawn) A method as recited in Claim 48, wherein the cell is part of a prostate cancer, and wherein the hormone or ligand comprises gonadotropin-releasing hormone, lamprey III luteinizing hormone releasing hormone (l-LHRH-III), the beta subunit of chorionic gonadotropin, beta chain of luteinizing hormone (bLH), or an analog of one of those hormones.

63. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 1, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

64. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 2, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

65. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 3, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

66. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 4, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

67. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 5, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

68. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 6, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

69. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 7, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

70. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 8, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

71 -72. (canceled)

73. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 11, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

74. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 12, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

75. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 13, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

76. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 14, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

77 -78. (canceled)

79. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a hormone-dependent tumor in a mammal, comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene as recited in Claim 17, wherein the first domain comprises the hormone on which the tumor is dependent, or an analog of that hormone.

80 - 82. (canceled)

83. (withdrawn, and currently amended) A method for killing or inhibiting the growth of a cell in a mammal, wherein the activity of the cell is dependent on the binding of a receptor on the cell surface to a ligand, said method comprising administering to the mammal an effective amount of a ~~DNA sequence~~ gene encoding a peptide, wherein said peptide comprises a first domain and a second domain, wherein: **(a)** the first domain comprises the ligand on which the activity of the cell depends, and **(b)** the second domain comprises a lytic peptide, wherein said lytic peptide comprises from 10 to 39 amino acid residues, is basic, and will form an amphipathic alpha helix.

84 - 85. (canceled)

86. (withdrawn) A method as recited in Claim 83, wherein the cell is a lymphocyte responsible for an autoimmune reaction, and wherein the ligand comprises an epitope to which the lymphocyte selectively binds.

87. (withdrawn) A method as recited in Claim 83, wherein the cell is a virally-infected cell that displays a surface receptor not displayed by otherwise similar, but uninfected cells, and wherein the ligand selectively binds to the surface receptor.

88 - 104. (canceled)

105. (withdrawn) A method as recited in Claim 38, wherein the mammal is a dog.

106. (withdrawn) A method as recited in Claim 38, wherein the mammal is a cat.

107. (withdrawn) A method as recited in Claim 38, wherein the mammal is a cow or bull.

108. (withdrawn) A method as recited in Claim 38, wherein the mammal is a pig.

109. (withdrawn) A method as recited in Claim 38, wherein the mammal is a horse.

110. (withdrawn) A method as recited in Claim 38, wherein the mammal is a sheep.

111. (withdrawn) A method as recited in Claim 38, wherein the mammal is a human.

112. (withdrawn) A method as recited in Claim 31, wherein the animal is a mollusc.

113. (withdrawn) A method as recited in Claim 112, wherein the mollusc is a zebra mussel.

114. (withdrawn) A method as recited in Claim 112, wherein the mollusc is an oyster.

115. (canceled)

116. (withdrawn, and currently amended) A method for selectively reducing the number of viable gonadotrophic cells in the pituitary of an animal, comprising administering to the animal an effective amount of a ~~DNA sequence~~ gene encoding a peptide, wherein said peptide comprises a first domain and a second domain, wherein: **(a)** the first domain comprises a hormone selected from the group consisting of gonadotropin-releasing hormone, lamprey III luteinizing hormone releasing hormone (l-LHRH-III), the beta subunit of chorionic gonadotropin, the beta chain of luteinizing hormone (bLH), and analogs of these hormones; and **(b)** the second domain comprises a lytic peptide; wherein the lytic peptide comprises from 10 to 39 amino acid residues, is basic, and will form an amphipathic alpha helix.

117. (canceled)

118. (withdrawn, and currently amended) A method for selectively reducing the number of viable neurons having gonadotrophic receptors in an animal, comprising administering to the animal an effective amount of a ~~DNA sequence~~ gene encoding a peptide, wherein said peptide comprises a first domain and a second domain, wherein: **(a)** the first domain comprises a hormone selected from the group consisting of gonadotropin-releasing hormone, lamprey III luteinizing hormone releasing hormone (l-LHRH-III), the beta subunit of chorionic gonadotropin, the beta chain of luteinizing hormone (bLH), and analogs of these hormones; and **(b)** the second domain comprises a lytic peptide; wherein the lytic peptide comprises from 10 to 39 amino acid residues, is basic, and will form an amphipathic alpha helix.

119. (canceled)

120. (withdrawn, and currently amended) A method as recited in Claim 31, wherein the animal is sexually immature when the ~~DNA sequence~~ gene is administered, and wherein, as a result, the fertility of the animal is decreased at a time when the animal would otherwise be sexually mature.

121. (canceled)

122. (withdrawn, and currently amended) A method as recited in Claim 38, wherein the mammal is sexually immature when the ~~DNA sequence~~ gene is administered, and wherein, as a result, the fertility of the mammal is decreased at a time when the mammal would otherwise be sexually mature.

123. (withdrawn) A method as recited in Claim 48, wherein the cell is part of an ovarian cancer, and wherein the hormone or ligand comprises lamprey III luteinizing hormone releasing hormone (l-LHRH-III), or an analog of that hormone.

124. (withdrawn) A method as recited in Claim 48, wherein the cell is part of a prostatic cancer, and wherein the hormone or ligand comprises lamprey III luteinizing hormone releasing hormone (l-LHRH-III), or an analog of that hormone.

125. (withdrawn) A method as recited in Claim 48, wherein the cell is part of a breast cancer, and wherein the hormone or ligand comprises lamprey III luteinizing hormone releasing hormone (l-LHRH-III), or an analog of that hormone.

126. (withdrawn) A method as recited in Claim 48, wherein the cell is part of an endometrial cancer, and wherein the hormone or ligand comprises lamprey III luteinizing hormone releasing hormone (l-LHRH-III), or an analog of that hormone.

127. (currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said first domain comprises bLH or the beta subunit of chorionic gonadotropin, or an analog of one of those hormones.

128. (withdrawn) A method as recited in Claim 48, wherein the cell is part of a testicular cancer, and wherein the hormone or ligand comprises gonadotropin-releasing hormone, lamprey III luteinizing hormone releasing hormone (l-LHRH-III), the beta subunit of chorionic gonadotropin, or beta chain of luteinizing hormone (bLH), or an analog of one of those hormones.

129 - 130 (canceled)

131. (withdrawn, and currently amended) A ~~DNA sequence~~ gene as recited in Claim 1, wherein said ~~DNA sequence~~ gene is operatively linked to an acute-phase responsive promoter.

132. (withdrawn, and currently amended) A vector for inserting a ~~DNA sequence~~ gene as recited in Claim 1 into a chromosome of a eukaryotic cell, comprising:

(a) a gene encoding a bacterial transposase;

(b) two transposon insertion sequences recognized by the transposase;

(c) a ~~DNA sequence~~ gene as recited in Claim 1, wherein said ~~DNA sequence~~ gene is between the two transposon insertion sequences; and

(d) a promoter that is operably linked to said transposase gene;

wherein one of said insertion sequences is located between said transposase gene and said ~~DNA sequence~~ gene; and where the transposase expressed by said transposase gene will excise from said vector a fragment comprising the two transposon insertion sequences and said ~~DNA sequence~~ gene between the two transposon insertion sequences, and will insert the excised fragment into a chromosome of a eukaryotic cell.

133. (withdrawn, and currently amended) A vector as recited in Claim 132, wherein said ~~DNA sequence~~ gene is operatively linked to an acute-phase responsive promoter.